MARS – Making Alerts Really Simple

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About LCO

- Operate a global network of telescopes
- 7 sites, 22 telescopes
- Maintain a number of open-source tools, including MARS
Motivations and Goals for MARS

Motivations
- Needed a broker to spur TOM Toolkit development
- Duplication of effort for in-house scientists
- Provide early option in a developing space

Goals
- Quick, reliable alert delivery
- Simple, easy-to-use web interface and API
- Maintain a history of alerts
Timeline

- 6/26/2018 - Decision to build MARS made, development begins
- 7/9/2018 - MARS beta is released into production
- 7/26/2018 - MOU signed to hook MARS into ZTF alert stream
- 8/1/2018 - Development for stream integration complete
Technology

- Python using Flask web framework
- 2 Docker containers for the web service, 2 containers for alert ingestion
- Shared PostgresDB hosted by AWS
- Alert AVROs stored in AWS S3
- <2000 lines of code
Features

Main page

- Range queries on all ZTF alerts since survey start
- Cone searches by object name or coordinates
- No classification

Alert detail pages

- Alert image cutouts
- JSON-serialized representation of alerts
- Access to original alert AVRO
- Grouping of alerts at the same location
- Light curves and JSON serialized photometry (new!), including non-detections
The ZTF survey was down for maintenance on Oct 10, 2018 and resumed normal operations on Oct 31, 2018. Please be aware that there are no alerts for that period of time.
API Demo

https://github.com/dmcollohmars_demo/

https://gist.github.com/dmcollohm77e1a028f6863631268aa97ca1c555db

https://gist.github.com/dmcollohma53336ec7c6cc7f7fff2a2a8e3d1ccca

https://tomtoolkit.github.io/
Thanks!

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